What is claimed is:

1. A diagnostic method for detecting at least one antibody directed against at least one primate immunodeficiency virus in a biological sample, comprising:

contacting a biological sample with (i) at least one detection multiple antigenic peptide comprising a portion of an immunodominant region of a transmembrane envelope protein of a primate immunodeficiency virus and (ii) at least one differentiation multiple antigenic peptide comprising a portion of a V3-loop of an envelope protein of a primate immunodeficiency virus, wherein the detection multiple antigenic peptide and the differentiation multiple antigenic peptide each comprise a core matrix and at least two linear antigenic sequences bonded to the core matrix, each linear antigenic sequence comprising less than about 16 amino acid residues; and

detecting the formation of any immune complex between the detection multiple antigenic peptide and the biological sample or between the differentiation multiple antigenic peptide and the biological sample, wherein formation of the immune complex with the detection multiple antigenic peptide indicates infection with a primate immunodeficiency virus and formation of the immune complex with the differentiation multiple antigenic peptide indicates infection with a particular type or strain of primate immunodeficiency virus.

2. The method of claim 1, wherein the detection multiple antigenic peptide comprises a portion of the immunodominant region of the transmembrane protein gp41 or gp 36.

3. The method of claim 1, wherein the differentiation multiple antigenic peptide comprises a portion of the V3-loop of the envelope protein gp120.

4. The method of claim 2, wherein the differentiation multiple antigenic peptide comprises a portion of the V3-loop of the envelope protein gp120.

5. The method of claim 1, wherein the linear antigenic peptide of the detection multiple antigenic peptide comprises a sequence

$$X_1GCX_4X_5X_6X_7X_8CX_{10}T$$
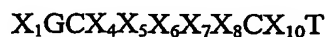
wherein X_1 is W, I or F;

X_4 is S, A or Q;

X_5 is G, D, F, W or N;

X_6 is K, R, M, S, A;

X_7 is A, V or Q;

X_8 is V, or I; and

X_{10} is Y, H or R.

6. The method of claim 1, wherein the detection multiple antigenic peptide and the differentiation multiple antigenic peptide each comprise four linear antigenic sequences bonded to their respective core matrix.

7. The method of claim 1, comprising detecting at least one SIV or SIV-like strain in the biological sample.

8. The method of claim 4, comprising detecting at least one SIV or SIV-like strain in the biological sample.

9. The method of claim 8, wherein there are a plurality of detection multiple antigenic peptides and a plurality of differentiation multiple antigenic peptides, and all recognized SIV strain epitopes are represented in at least one of the detection multiple antigenic peptide or the differentiation multiple antigenic peptide.

10. The method of claim 1, wherein the biological sample comprises a serum sample or a plasma sample from a subject.

11. The method of claim 1, wherein each linear antigenic sequence of the detection multiple antigenic peptide comprises about 5 to about 15 amino acid residues, and each linear antigenic sequence of the differentiation multiple antigenic peptide comprises about 5 to about 15 amino acid residues.

12. The method of claim 1, wherein detecting formation of the immune complex comprises performing an enzyme immunoassay technique.

5   13. The method of claim 12, wherein the enzyme immunoassay technique comprises an ELISA technique.

14. The method of claim 1, wherein the method has a primate immunodeficiency virus-specific antibody detection specificity of at least about 95 %.

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15. The method of claim 5, wherein the linear antigenic peptide of the differentiation multiple antigenic peptide comprises RGEVQIGPGMTFYNI (SEQ ID NO. 14).

15   16. The method of claim 5, wherein the linear antigenic peptide of the differentiation multiple antigenic peptide comprises VLPVTIMSGLVFHSQ (SEQ ID NO: 15).

17. The method of claim 5, wherein the linear antigenic peptide of the
20   differentiation multiple antigenic peptide comprises VLPVTIMAGLVFHSQ (SEQ ID.NO: 16).

18. The method of claim 5, wherein the linear antigenic peptide of the differentiation multiple antigenic peptide comprises IKNIQLAAGYFLPVI (SEQ ID NO:
25   17).

19. The method of claim 5, wherein the linear antigenic peptide of the differentiation multiple antigenic peptide comprises EVSTISSTGLLFYYG (SEQ. ID NO: 18).

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20. The method of claim 5, wherein the linear antigenic peptide of the differentiation multiple antigenic peptide comprises HRNLNTANGAKFYYE (SEQ ID NO: 19).

21. The method of claim 5, wherein the linear antigenic peptide of the differentiation multiple antigenic peptide comprises VKGISLATGVFISLR (SEQ ID NO: 20).

5   22. The method of claim 5, wherein the linear antigenic peptide of the differentiation multiple antigenic peptide comprises IVSVPSASGLIFYHG (SEQ ID NO: 21).

23. The method of claim 5, wherein the linear antigenic peptide of the
10   differentiation multiple antigenic peptide comprises YRAVHMATGLSFYTT (SEQ ID NO: 22).

24. The method of claim 1, wherein the linear antigenic peptide of the detection multiple antigenic peptide comprises a sequence of WGCSGKAVCYT (SEQ ID NO: 1),
15   IGCANMQICRT (SEQ ID NO: 8), or FGCAWRQVCHT (SEQ ID NO: 9), or a sequence having at least 80% sequence identity to one or more of these sequences.

25. The method of claim 1, wherein the linear antigenic peptide of the differentiation multiple antigenic peptide comprises one of SEQ ID NOS: 14-22 or a
20   sequence having at least 80% sequence identity to one or more of those sequences.

26. An enzyme immunoassay, comprising:
a first substrate to which is bound at least one detection multiple antigenic peptide comprising a portion of an immunodominant region of a transmembrane envelope protein of
25   a primate immunodeficiency virus; and
a second substrate to which is bound at least one differentiation multiple antigenic peptide comprising a portion of a V3-loop of an envelope protein of a primate immunodeficiency virus;
wherein the detection multiple antigenic peptide and the differentiation multiple
30   antigenic peptide each comprise a core matrix and at least two linear antigenic sequences bonded to the core matrix, each linear antigenic sequence comprising less than about 16 amino acid residues.

27. The immunoassay of claim 26, wherein the detection multiple antigenic peptide
35   comprises a portion of the immunodominant region of the transmembrane protein gp41 or

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gp36, and the differentiation multiple antigenic peptide comprises a portion of the V3-loop of the envelope protein gp120.

28. The immunoassay of claim 26, wherein each linear antigenic sequence of the detection multiple antigenic peptide comprises about 5 to about 15 amino acid residues, and each linear antigenic sequence of the differentiation multiple antigenic peptide comprises about 5 to about 15 amino acid residues.

29. An enzyme immunoassay, comprising:

a first array of a plurality of detection multiple antigenic peptides comprising a portion of an immunodominant region of a transmembrane protein of a primate immunodeficiency virus; and

a second array of a plurality of differentiation multiple antigenic peptides comprising a portion of a V3-loop of an envelope protein of a primate immunodeficiency virus, wherein the detection multiple antigenic peptide and the differentiation multiple antigenic peptide each comprise a core matrix and at least two linear antigenic sequences bonded to the core matrix, each linear antigenic sequence comprising less than about 16 amino acid residues.

30. A multiple antigenic peptide construct comprising a core matrix and at least two linear antigenic sequences bonded to the core matrix, wherein the linear antigenic sequence comprises a sequence of less than 16 amino acid residues represented by

$$X_1GCX_4X_5X_6X_7X_8CX_{10}T$$
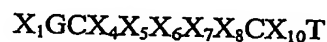
wherein X_1 is W, I or F;

X_4 is S, A or Q;

X_5 is G, D, F, W or N;

X_6 is K, R, M, S, or A;

X_7 is A, V or Q;

X_8 is V, or I; and

X_{10} is Y, H or R.

31. A multiple antigenic peptide construct comprising a core matrix and at least two linear antigenic sequences bonded to the core matrix, wherein the linear antigenic

sequence comprises less than 16 amino acid residues and is from the immunodominant region of the transmembrane protein gp41 or gp 36 of a simian immunodeficiency virus.

32. A multiple antigenic peptide construct comprising a core matrix and at least two linear antigenic sequences bonded to the core matrix, wherein the linear antigenic sequence comprises less than 16 amino acid residues and is from the V3 region of the envelope protein gp120 of a simian immunodeficiency virus.

33. A diagnostic kit for detecting at least one antibody directed against at least one primate immunodeficiency virus in a biological sample, comprising:

(a) at least one detection multiple antigenic peptide comprising a portion of an immunodominant region of a transmembrane protein of a primate immunodeficiency virus;

(b) at least one differentiation multiple antigenic peptide from a V3-loop of an envelope protein of a primate immunodeficiency virus, wherein the detection multiple antigenic peptide and the differentiation multiple antigenic peptide each comprise a core matrix and at least two linear antigenic sequences bonded to the core matrix, each linear antigenic sequence comprising less than about 16 amino acid residues; and

(c) instructions for performing an enzyme immunoassay of a biological sample using the detection multiple antigenic peptide and the differentiation multiple antigenic peptide to detect at least one primate immunodeficiency antibody in the biological sample.

34. The diagnostic kit of claim 33, further comprising at least one reagent that can detect the binding of an antibody to at least the detection multiple antigenic peptide or the differentiation multiple antigenic peptide.

35. The method of claim 1, wherein the detection multiple antigenic peptide is not from a human immunodeficiency virus and the differentiation multiple antigenic peptide is not from a human immunodeficiency virus.

36. The immunoassay of claim 26, wherein the immunoassay does not include any detection multiple antigenic peptide from a human immunodeficiency virus and any differentiation multiple antigenic peptide from a human immunodeficiency virus.

37. The method of claim 1, wherein the primate immunodeficiency virus is a simian immunodeficiency virus.

38. The immunoassay of claim 26, wherein the primate immunodeficiency virus is a simian immunodeficiency virus.

5   39. The method of claim 1, wherein the biological sample is from an HIV seronegative human.

40. The method of claim 1, wherein the biological sample is from a simian.